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ABSTRACT

A growing number of computer software companies currently offer reading software that provides teachers with author/editing procedures, allowing them to enter their own text (specialized words, sentences, concepts, and so forth) and match the software content to their objectives for reading instruction. Programs of modification contain "frames" in which teachers' content changes and additions may be written for their lessons. Frames, the text and graphic images that appear on the computer screen at any given time, come in at least four types: (1) instruction frames designed to present goals and directions to the students, (2) information frames that present a sequence of explanations and examples about specific reading skills, (3) response frames that ask students to show what they have learned from the information frames, and (4) hint frames that provide specific explanations to students for each incorrect response that they make. While each modifiable reading software package is unique in some feature or procedure, all allow for at least some versatility and ease in creating new lessons, changing existing programs, adding or removing items from new or existing programs, and making corrections. (HOD)

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Modifying Commercial Software Yourself to Match Your Reading Instruction

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Running Head: MODIFYING READING SOFTWARE

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Modifying Commercial Software Yourself to Match Your Reading Instruction

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The current flood of reading software for microcomputers in classrooms has been evaluated for educational and motivational effectiveness, ease of use, clarity of screen display and directions, error handling, reliability, visual effects and value for the money. Those which teachers rated high have found their way into American classrooms. Unfortunately, these software packages promote reading skills acquisition and drill in only the most general ways. Bitter and Gore, in their book, The Best Educational Software for Apple II Computers (1984), refused to recommend ANY reading software programs. They supported their position by contending, first, that current reading programs are little more than tests and workbook pages transferred to floppy disks. Secondly, they cautioned that the current reading software are too limited in terms of length and coverage. They believe that classroom students would run through the canned lessons so quickly that the skill to be practiced would become boring and meaningless. A plausible explanation for their position is that the words, sentences, concepts and ideas included as the "content" of current reading software have been identified for inclusion by commercial programmers and publishers, not by the classroom teacher. In order to attract the widest possible buying audience, the content of software lessons are drawn from established graded word lists and popular stories rather from specific selections teachers have found that work well with their students. Similar to the dilemma posed by the programmed instruction materials of the past and worksheet exercises of today, teachers, consequently, have had to either alter reading instruction to match the software content or develop the programming skills necessary to create their own software skills lessons to match their instructional objectives. Current microcomputer software companies should be obliged to include built-in systems for enabling teachers, who are not accomplished programmers, to modify commercial software to match the content of the reading lessons they actually teach. And these teachers should be able to make these content changes with relative ease!

A growing number of new reading software is, in fact, now available which allows for "modifying" content. That is, authoring/editing procedures have been included by commercial programmers to allow teachers to enter their own text (i.e., specialized words, sentences, and concepts) into the software to match the content of their present objectives for reading instruction. The clear benefits of including modifying procedures in commercial software are (1) increased lifetime of the software for classroom use, (2) greater opportunities for truly individualizing reading skills instruction, and (3) most importantly, a means for fusing process (i.e., skills and strategies) and content (i.e., facts and concepts) in reading instruction. That is, computer software skills lessons can be modified and used to preview and/or reinforce real reading situations, acting as prereading and postreading

activities within the directed reading lesson.

Computer software companies, such as Data Command, Davidson & Associates, Edu-Ware Services, Hartley Courseware, Microsoft Corporation and Sunburst Courseware, currently offer reading software with special modification features. When used for readiness and/or reinforcement of basal or content area reading instruction, these software packages can be modified to alert students to key concepts in the reading content, thus promoting process along with content as students learn by reading. Software packages which introduce and provide practice with antonyms and synonyms can be modified to show students how new concept terms in the to-be-read selection relate to words already in their existing vocabulary. Analogies software programs can be modified to promote students' ability to form synonymous, antonymous, part-whole, and group-member relationships among newly acquired concepts from reading. Memory building software can be employed with modification to reinforce recall of reading concepts along with any type of word and phrase level skills application (e.g., rhyming words, homonyms, parts of speech). And finally, but far from least, software lessons designed to teach students to distinguish fact from opinion can be modified as a prereading guide to include statements from assigned reading for activating students' critical thinking.

Features in Modifying Reading Software

Each software company varies somewhat in its modification features and procedures, starting with how each refers to modification: one refers to an "editor" for changing or creating the content while others refer to the same operating system as the "system generator", the "teacher feature", "do-it-yourself lessons," and the "authoring program." Generally, however, all modifying programs are designed to enable teachers to make corrections in existing lessons with ease as well as to add or remove content from a lesson. This means that you can make some changes in programs already on the disk, or you can elect to create a whole new program of your own. Most modifications are designed to be made on the original commercial program disk; some programs, however, require you to use a blank disk to make and save your modifications. Programs of modification contain "frames" in which teachers' content changes and additions may be written for their lessons. Frames are simply those text and graphic images that you see on the computer screen at any given time. While frames vary in length from software program to software program, the maximum length for any frame is 25 characters per line and nine lines per frame. These length limitations are imposed, in part, to prevent too much text from appearing on the screen at one time. Ascribing to the KISS principle, you are obliged to "keep it short (and) simple." The total number of frames available also varies from program to program, but in almost all cases, you will have more than enough frames to include all the content information you want to present to your students. There are at least four distinct frame types:

(1) instruction frames,
(2) information frames,
(3) response frames, and
(4) hint frames.

Instruction frames. These frames are designed to present goals and directions to the student(s), that is, the reason the lesson is being presented and how the content is to be learned. Here is where you would title the lesson and briefly explain the type of lesson this is to be. This is where you can show students that you have personalized the content of this software lesson to relate to a specific reading selection you are about to read or have just finished. For example, you might introduce a prereading software lesson which requires readers to use their reasoning skills (process) and prior knowledge (content) to determine whether statements taken from their next reading assignment are either fact or opinion:

PREDICTING FACT & OPINION

Can you predict which of the following statements from your next selection, "Eruption", are FACT or OPINION? Come to agreement in your group about each statement. Use your reasoning powers and prior knowledge to guide your decisions.

PRESS RETURN 1

REMEMBER: an OPINION is what someone believes. A FACT is a true statement.

Read each statement and type "F" for fact or "O" for opinion. We'll compare our predictions as a class.

PRESS RETURN 2

Instructions such as these send a convincing message to students that this activity has real purpose for readying them to comprehend the selection, "Eruption." The processing skills of reasoning dealt with in this software lesson applies directly to the way in which students are to think about the content of the selection: what scientists "know" and "believe" about volcanoes and eruptions.

Information frames. These frames present a sequence of explanation and examples about the specific reading skills for which the commercial software was originally designed, such as teaching younger learners how to identify details in stories that tell "what" and "where". This is a great place where you can relate those skills being developed in these frames to a specific story the students have just read. As the skills are defined, reference to the story can be inserted and subsequent examples can be modified to illustrate the skills with text portions drawn from the story. For example, you might modify a '"where" information frame with:

> In your story, "Ben's Surprise", we read about a lot of places where the story took place. WHERE tells us the "place" that something happened. EXAMPLE: 'going up the street' tells us WHERE Ben was going

In modifying this frame, students are able to see a direct connection between "where" details and the events of a story that they know. Thus,

they recognize firsthand the way in which the skill has been applied. Students become actively involved with this skill because they can identify the relationship between the where (process) and the what (content). What is more, a by-product of this lesson is the reinforcement of memory for story details.

Response frames. These could also be called question frames because the students are asked here to show what they have learned from the information frames. Here is where you draw from the story, selection or article the content words, phrases, sentences or paragraphs which require the students to practice applying the skill taught in the information frame. You have the option of asking single response questions, such as those requiring yes/no, true/false or agree/disagree responses; or you can ask multiple response questions with up to four choices, such as A,B,C,or D. For example, you might want students to show in a postreading software lesson that they understand what words in their general vocabulary are synonyms for key terms from the selection they read, "Flying Like Birds":

```
FLY is a synonym for                Select a synonym
SOAR.  Is GLIDE a syn-              for SOAR.
onym for SOAR?            OR
     a.  yes                        a. ride   b. jump
     b.  no                         c. glide  d. walk
answer:_____                        answer:_____
```

All response frames include a line for you to enter the correct answer and the option to present an "explanation response" if the student selects an incorrect answer. In the yes-no frame above, for example, if a student selects the incorrect "no", you might provide an explanation response that could resemble the following:

```
FLY is a synonym for
SOAR. Is GLIDE a syn-
onym for SOAR?
     a.  yes
     b.  no
answer: b
_____________
        a
should  yes
 be     (synonyms have
        similar meanings)
```

In cases where you include four choices from which to select the correct answer, you have the option to select the number of retries you want to provide the students along with or without an explanation or sometimes even a hint frame (more on this type below). Your use of explanations is an opportunity to be there for the student when they discover that they are not understanding what you presented. Since you know, frame by frame, what is important to remember, you can tailor each response frame explanation to fit the students' need for recovering from mistakes in understanding.

Hint frames. This type of frame is an option in only a few software modifying programs. Designed to follow multiple choice

response frames, you can provide a specific explanation to students for each incorrect response that they make. For example, in the "Flying Like Birds" multiple choice response frame above, you might provide the following hint frame for the incorrect choice (d.) walk:

Hint Frame

REMEMBER: Synonyms are words with similar meanings. Walk and Soar are NOT similar in their meaning. Look for another choice that IS similar in meaning to Soar.

These frames are particularly useful to guide slower learners to identifying what synonyms are and acquire the new vocabulary introduced in "Flying Like Birds". As stated earlier, few modifying systems to date include this option for guiding slower learners, and these hints can be time-consuming to create. In any case, this option can enable you to truly individualize skill instruction while promoting the acquisition of meaningful content.

These frames in the software's modifying system combine to provide you with a means for truly integrating reading skills and content instruction so that both process and content are being promoted through the software lesson. Your familiarity with the role each frame type plays in the lesson will help you to plan for logically sequenced and contextually meaningful instruction and practice.

Procedures for Modifying Reading Software

Within the growing community of modifiable reading software, even a casual perusal indicates that there are many different kinds of editors used to develop the software packages. While each one is unique in some feature or procedure, all allow for at least some versatility and ease for modification, that is, creating new program lessons, changing existing programs, adding or removing items from new or existing programs and making corrections. In at least some part, all modifiable software packages suggest and/or include the following procedures.

1. Identify from your instructional objectives what process skills you want to develop along with the appropriate content from your reading selection(s) to assure that your skills/content software lesson will be a meaningful activity. Depending upon the type of skill(s) you want to teach, compose your list of words, phrases, sentences or paragraphs drawn from the content of your reading selection(s). For incorporating your list into the modification program, you will need:

   - an instruction frame introducing the purpose and directions of the lesson
   - at least one information frame (but probably many more) which defines each skill to be learned and practiced along with illustrated examples drawn from your reading selection(s)

- a response frame for each word, phrase, sentence or paragraph on your list along with (a) a 2- or 4-choice test item (b) the correct alternative and (c) an explanation for helping students understand why an incorrect choice does not work
- a hint frame (optional where offered at all) for each incorrect choice in each response frame to guide students to seeing the correct alternative

2. Select a modifiable commercial reading software package that will allow you to insert your modifications with relative ease. Choosing a software package that already teaches the skills you've identified for your reading selection is generally the easiest route to go; but if you can't find a modifiable package which deals with your chosen skill objective, don't be afraid to modify some other software package.

3. Start up the "Teacher Files" portion of the software to view the menu of modification options. Generally, you will have to press control-T or control-I while your software is booting up (while the red light is shining on your disk drive). In some cases, you will have to type MENU when they ask for a name to enter the teacher files.

4. Select the option file which allows you to make your desired modifications. If this is your first time modifying software, choose the "Correct/Change List" file instead of the "Create List" file. Although the automatically generated program for inserting your composed list of frame information is the same for both files, you will find making corrections to existing text quicker and more understandable in the correct/change file than you would in the create file. Another tip for beginners is to start small--with five or six modified items rather than 25. After you have done a few short ones and learned the minor quirks of each system,then move to the create file for the speed of input it allows experienced teacher modification users.

5. Follow the frame requests in the system's editor to build your modified file. generally, you'll start out with completing an instruction frame, followed by information frames, then response frames with explanations. Where the option exists and is selected, each response frame is followed by a corresponding hint frame.

6. When you have entered all your modifications into their proper frames, signal the computer that you're ready to go on by typing a "#" or some other designated quit signal in the program. You will then be asked to decide on some "design options". These can include decisions to (1) present your frames in a random or set order, (2) give students a certain number of tries on each frame before displaying the correct answer, (3) to terminate the lesson after a number of incorrect answers because a student is doing very poorly, (4) to terminate a lesson after a number of consecutive correct answers because student is doing very well, and (5) to show questions a student missed again after the lesson

is completed.

7. You should then follow menu procedures for naming/renaming your new file and saving it on the disk for students to run. If you have modified an existing file by selecting the correct/change file, simply name the file a different title from the one you changed. This way, you end up with a new file of your own and the original file remains unchanged.

8. Finally, run the program as a lesson to check for errors and typos. Clean any these up in the correct/change file in the same way you created the frames. Then ask some colleagues or a student to run the lesson and get their feedback before you try it out in your classroom reading lesson.

Summary

Modifying commercial reading software which have been programmed with built-in editing procedures holds great potential for putting teachers into the control seat in reading instruction. When teachers can decide what the content of software skills lessons will be, they can draw that content from the stories and articles they require their students to read. And by doing so, students can see directly how their skills instruction helps them draw greater meaning from those readings. In short, the content modifications bring a value to the software skills lessons that students cannot ignore. They see for themselves that reading involves both process and content: the hallmark of any successful reading program.

Reference

Bitter, G.G., & Gore, K. (1984). The best of educational software for Apple II computers. Berkeley, California: Sybex Inc.